

dent pharmacies in Texas to 24,576 dual eligible patients. Percent gross margin was compared between Medicaid and Medicare Part D claims as well as among several popular Prescription Drug Plan (PDP) sponsor claims. **RESULTS:** The mean percent gross margin for prescriptions dispensed before Part D (Medicaid claims) was 26.7%. The mean percent gross margin for claims dispensed after Part D (Medicare claims) was 17.0% (using ingredient costs in 2006 dollars) or 20.4% (using ingredient costs adjusted to 2005 dollars), a reduction of 36.3% and 23.6%, respectively. Among the five PDP sponsors identified as having the greatest number of claims in the sample, the mean percent gross margin ranged from 12.0% to 19.8%. Regression analysis confirmed that the PDP sponsor, in addition to the proportion of generic drugs dispensed, is a significant predictor of a pharmacy's overall percent gross margin. **CONCLUSION:** These findings support pharmacy assertions of lower reimbursements from Medicare Part D payers compared with Medicaid payers. Based on these findings, pharmacies can respond to this new environment by accepting Part D plans with higher average percent gross margins and increasing the proportion of generic drugs dispensed to Medicare beneficiaries.

## MD3

#### IMPACT OF MEDICARE PART D DOUGHNUT HOLE ON THE USE OF MEDICATIONS BY THERAPEUTIC CLASSES FOR STANDARD BENEFICIARIES

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**OBJECTIVE:** The standard Medicare Part D benefit includes a "doughnut hole" in coverage. Standard benefit beneficiaries who fall into this gap are responsible for the total costs of their prescription drugs. The objective of this study was to evaluate the impact of doughnut hole on the use of medications by therapeutic classes. **METHODS:** A difference-in-difference (DID) study approach was used. De-identified data from January 1, 2006 to December 31, 2006 were obtained from a pharmacy benefit management database. The study group included standard benefit beneficiaries who reached the doughnut hole in a time period from June 1 to October 31, 2006. The control group included beneficiaries enrolled in commercial prescription drug plans without coverage gaps. Changes in prescription days per month, out-of-pocket costs per month, and generic utilization rates by therapeutic classes were targeted outcome measures. **RESULTS:** After controlling for demographics, disease conditions and secular trend of drug use, the Part D doughnut hole was found to be associated with reductions in use of antiasthmatics (−3.08 prescription days per month,  $p < 0.0001$ ), antineoplastics (−2.70,  $p < 0.0001$ ), antipsychotics (−1.77,  $p = 0.0630$ ), anti-diabetic drugs (−1.63,  $p = 0.0010$ ), anticonvulsants (−1.49,  $p = 0.0042$ ), antidepressants (−1.11,  $p = 0.0011$ ), antihyperlipidemics (−1.09,  $p < 0.0001$ ), but slight increase in use of antivirals (0.08,  $p = 0.9011$ ) and opioid analgesics (0.05,  $p = 0.8503$ ). The Part D doughnut hole was also associated with significant increases in the average out-of-pocket costs for all therapeutic classes and increases in generic utilization rates for all classes except opioid analgesics. **CONCLUSION:** Standard Part D beneficiaries in the doughnut hole significantly reduced use of medications for potentially disabling and life-threatening conditions, but increased spending on medications for potentially less life-threatening conditions. This raises concern for an increased risk of adverse health events.

## MD4

#### IMPACT OF THE MEDICARE MODERNIZATION ACT OF 2003 ON PART B DRUG USE AND SPENDING: A CASE STUDY OF BIOLOGICALS FOR RHEUMATOID ARTHRITIS

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**OBJECTIVE:** To examine the changes in Medicare Part B drug utilization and expenditures associated with the reduction in physician reimbursement for Part B drugs between 2003 and 2005 and availability of drug alternatives through Medicare Part D in 2006. This study specifically focuses on Part B biologics for rheumatoid arthritis (RA) since they faced both these changes introduced by the Medicare Modernization Act (MMA) of 2003. **METHODS:** We used the 2002 to 2006 Medicare 5% files which contain fee-for-service claims and enrollment data for a 5% random sample of the Medicare population. We examined beneficiaries with an RA diagnosis (ICD-9-CM 714.xx) in each year. Infliximab, the only Part B covered RA biologic available pre-MMA, was identified using HCPCS codes. We tracked national trends in its prevalence of use, number of claims, and total payments (in 2004 dollars) across 2002 to 2006. Multivariate regressions with standard errors corrected for repeated observations were estimated. **RESULTS:** We identified 0.65 to 0.81 million RA patients in 2002 to 2006. The prevalence of infliximab use increased from 4.6% to 5.8% between 2002 and 2004 and then declined to 5.0% in 2005 and 5.2% in 2006 ( $p < 0.05$ ). The number of infliximab claims per user increased from 2002 to 2004 ( $p < 0.05$ ); however, there was no significant change across 2004 to 2006. As expected, the average payment per claim reduced by 10% from 2004 to 2005. As a result, total payments for infliximab declined from \$512 million in 2004 to \$459 million in 2005. Total payments per user reduced from \$12,443 in 2004 to \$11,194 in 2005 ( $p < 0.05$ ). There was no significant difference in any payment measure between 2005 and 2006. Adjusted analyses confirmed these findings. **CONCLUSION:** Infliximab use and expenditures declined modestly after the introduction of the average sales price based reimbursement system in 2005. No changes were observed after the introduction of Medicare Part D in 2006.

#### MENTAL HEALTH OUTCOMES RESEARCH

## MHI

#### REAL WORLD ASSOCIATION BETWEEN ANTIPSYCHOTIC TREATMENT AND WEIGHT GAIN IN AN ADOLESCENT POPULATION

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**OBJECTIVE:** To examine the real world impact of antipsychotics on weight gain in adolescent patients (12–19 years) taking second-generation (SGA) or first-generation antipsychotics (FGA). **METHODS:** Naïve monotherapy patients receiving FGA's or SGA's between July 1999 and March 2006 were identified using the GE Centricity electronic medical record database; patients on clozapine or depot antipsychotics were excluded. Baseline Body Mass Index (BMI) recorded within  $\leq 90$  days prior and closest to index prescription date was compared with maximum BMI obtained during the follow-up period (at least 90 days to end of study period or monotherapy period). Multivariate linear and logistic regressions were conducted to estimate the magnitude of weight gain and odds of 5%, 10%, 15%, and 20% increase in BMI. To account for growth, BMI was normalized by calculating

z-scores and odds of  $\geq 0.5$  change in baseline to follow-up z-scores were estimated. **RESULTS:** A total of 1179 eligible patients were identified with mean age 15.2 years (SD, 2.16) and 51% female. The distribution was: FGA's 19% (n = 253), aripiprazole 11% (n = 129), olanzapine 15% (n = 182), quetiapine 25% (n = 297), risperidone 26% (n = 308), and ziprasidone 3% (n = 32). In the linear model, adolescents on olanzapine experienced a significant increase in BMI [0.84 kg/m<sup>2</sup> (CI, 0.17–1.52)] compared to those on aripiprazole. Logistic model results indicated a significant likelihood of a 5 to 20% increase in BMI for those on olanzapine [OR: 1.54 (CI, 0.96–2.5) to 4.53 (CI, 1.79–11.48) and a 10 to 20% increase for those on risperidone [OR: 1.84 (CI, 1.15–3.0) to 2.18 (CI, 1.21–3.96)], compared to aripiprazole. In the BMI z-score analysis, adolescents on olanzapine experienced a significant increase in BMI [OR: 1.65 (CI, 1.02–2.67)]. Results for FGA's, quetiapine, and ziprasidone were not statistically significant. **CONCLUSION:** Potential for weight gain varies by antipsychotics and should be taken into account while prescribing these medications to adolescents.

## MH2

#### ECONOMIC AND CLINICAL CONSEQUENCES ASSOCIATED WITH POTENTIAL DRUG-DRUG INTERACTIONS BETWEEN ANTIPSYCHOTICS AND CONCOMITANT MEDICATIONS IN PATIENTS WITH SCHIZOPHRENIA

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**OBJECTIVE:** Inhibiting or inducing antipsychotic metabolism via the hepatic cytochrome P450 (CYP450) may have clinical and economic consequences. This study examined whether drug-drug interactions (DDIs) between oral antipsychotics and non-antipsychotic concomitant medications that are inhibitors or inducers of CYP450 isoenzymes are associated with increased health care utilization and costs in schizophrenics or schizoaffective-disorder patients. **METHODS:** Ohio State Medicaid data contributed patients (18  $\leq$  age < 65) who had schizophrenia or schizoaffective disorder and received an antipsychotic from 2000 to 2003 (N = 31,716). Clinically significant DDI pairings (Facts & Comparisons 4.0) were examined, with concomitant exposure for an antipsychotic prescription overlapping with an interacting medication. Three adverse events (AEs) (extrapyramidal symptoms, increased seizure risk and QT-prolongation or arrhythmias) associated with DDIs were studied. Utilization and costs for inpatient and ambulatory care during a 90-day follow-up were examined. Regression analyses were used to adjust for confounding factors between patient groups. **RESULTS:** Most patients had non-DDI (26,546); 7060 had a DDI (no AE) and 110 experienced DDI + AE. Length of stay and emergency room visits (mean  $\pm$  SD) were highest for DDI + AE (25 days  $\pm$  17.8; 3.4  $\pm$  4.1) and lower for the DDI (11 days  $\pm$  9.9; 1.5  $\pm$  1.0) and non-DDI (3.6 days  $\pm$  15.6; 0.5  $\pm$  2.8) groups. Health care costs were higher with DDI + AE (\$9699) or DDI (\$2962) compared with non-DDI (\$2201). Regression analysis indicated that patients with DDI + AE or DDI had significantly higher health care utilization and costs than patients without DDI (P < 0.001). Stepwise regression showed that patients with a DDI or DDI + AE associated with olanzapine, risperidone and quetiapine had higher total costs than patients without a DDI. **CONCLUSION:** These data suggest that antipsychotic DDIs are related to higher health care utilization and costs. Efforts to avoid potential DDIs associated with some antipsychotics are critical for clinical practitioners to prevent costly clinical and economic consequences.

## MH3

#### WORK ABSENTEEISM AND BED DAYS IN CHRONIC MEDICAL DISORDER PATIENTS WITH AND WITHOUT DEPRESSION IN THE UNITED STATES, 2004–2005

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**OBJECTIVE:** Study of depression on disability days and work absenteeism in patients with chronic medical disorders (CMDs) is limited. Our objective was to compare annual bed days and missed workdays in CMD patients with and without depression. **METHODS:** For retrospective analysis, we extracted data on  $\geq 18$  year-old employed adults from the pooled 2004–5 Medical Expenditure Panel Survey. Data included ICD-9-CM-coded CMD (hyperlipidemia, heart-disease, arthritis/other joint-disorders, chronic obstructive pulmonary disease, hypertension, diabetes), and depression; number of missed workdays and bed days, age, gender, race, poverty level, health insurance, health status (physical, mental), urban residence, and any depression treatment (psychotherapy/antidepressant). For 6786 CMD patients with and without depression, we compared rates with one or more missed workdays and bed days, and mean number of missed workdays and bed days. Weighted sample estimates and 95 percent confidence limits (CL) were calculated using the Taylor expansion method. In multivariate logistic regression models, after controlling for other characteristics, we examined association of depression with one or more missed workdays and one or more bed days. **RESULTS:** Compared with those without depression, significantly more CMD patients with depression reported one or more missed workdays [50.26% (SE0.86%) vs. 70.14% (SE2.11%) p < 0.001], and one or more bed days [18.51% (SE0.66%) vs. 34.24% (SE2.2%), p < 0.001]. The mean number of missed workdays (9.93  $\pm$  0.94 vs. 5.01  $\pm$  0.22) and bed days (4.29  $\pm$  0.62 vs. 1.03  $\pm$  0.08) were also higher in CMD with versus without depression. In multivariate analyses, after controlling for other characteristics including any depression treatment, depression increased the likelihood of one or more missed workdays (adjusted Odds-Ratio, OR 1.41, 95% CL:1.14–1.75, p = 0.002) and one or more bed days (OR 1.37, 95% CL:1.07–1.75, p = 0.013) in CMD patients. **CONCLUSION:** Depression plays a significant role in both absenteeism and bed days in CMD patients in the United States. Effective identification and treatment strategies require the attention of both providers and payers.

## MH4

#### TREATMENT COST AND COMORBIDITIES ASSOCIATED WITH OBESITY AMONG CHILDREN AND ADOLESCENTS WITH BIPOLAR DISORDER

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**OBJECTIVE:** Childhood obesity as a known risk factor associated with bipolar disorder complicates its treatment. The purpose of this study is to assess treatment costs and comorbidities associated with obesity in children and adolescents with bipolar disorder. **METHODS:** Based on a multi-state managed care medical claims database (PharMetrics), a total of 9895 children and adolescents (6 < age < 19) who had been diagnosed and received medication treatment for bipolar disorder during the period January 1, 1998 to December 31, 2002 were selected for this study. Annual treatment cost per patient was constructed as the sum of reimbursed amounts (in 2002 constant dollars) for hospitalizations, outpatient care, emergency room (ER) visits, physician encounters, laboratory tests, drugs, and other medical services. A stepwise log-linear regression analysis was used to